NORTH CENTRAL FOREST & RANGE EXPERIMENT STATION RESEARCH NOTES

VOL. 3
1981-83
NC 262-310

SD
11
A355

U.S.D.A.

NORTH CENTRAL FOREST EXPERIMENT STATION

Research Note NC-262

1992 FOLWELL AVE. ST. PAUL, MN 55108 FOREST SERVICE-U.S.D.A.

1981

TIMBER VOLUME IN MINNESOTA, 1977

Arnold J. Ostrom
Mensurationist

ABSTRACT.—Presents statistics on Minnesota's growing-stock and sawtimber volumes by county for 1977. Includes a map showing growing-stock volume classes by county.

KEY WORDS: Growing stock, sawtimber, species, counties.

Minnesota's 13.7 million acres of commercial forest land supported 11.4 billion cubic feet of growing-stock[1] in 1977. This is an increase of 21 percent since the last inventory in 1962, despite a decrease in the commercial forest land base of 11 percent. However, this increase was not distributed proportionally among all species. Volume in softwoods increased a modest 3 percent while volume in hardwood species jumped 32 percent in the 15 years between inventories. These increased volumes reflect a maturing of Minnesota's forest with average growing-stock volume per acre increasing from 613 cubic feet (7.8 cords per acre) in 1962 to 836 cubic feet (10.6 cords per acre) in 1977. Growing stock trends are shown in the following tabulation:

Growing stock	[2]1962	1977
	(Million cubic feet)	
Softwoods	3,384	3,477
Hardwoods	6,060	7,977
Total	9,444	11,454

[1]*Net volume of all live merchantable trees 5 inches d.b.h. and larger from the stump to a variable 4-inch top diameter outside bark of the central stem. Does not include limbs or cull tree volume.*

[2]*Figures have been adjusted from those published after the 1962 survey to conform to 1977 volumes because of changes in survey procedures and definitions.*

Aspen is the most abundant species in Minnesota accounting for 30 percent of the growing-stock volume. Its volume increased by 22 percent between surveys. Paper birch, the second most plentiful species in the State, showed an even more dramatic increase of 50 percent. The third most prominent species, balsam fir, increased 17 percent in the 15 years between inventories. The volumes of the other two species in the top five, spruce and jack pine, declined by 12 and 17 percent, respectively. These five species make up three-fifths of the growing-stock volume in Minnesota. The following tabulation shows growing-stock volumes of these species.

Species	Growing stock
	(Million cubic feet)
Aspen	3,411
Paper birch	1,274
Balsam fir	894
Spruce	718
Jack pine	594

Included in the growing-stock volume are 25 billion board feet of sawtimber,[3] expanded from 15 billion in 1962. This is an even more rapid accumulation of volume than growing stock, with softwoods expanding by 39 percent and hardwoods by 84 percent.

[3]*Net volume of live merchantable sawtimber trees (softwoods 9.0 inches d.b.h. or larger and hardwoods 11.0 inches d.b.h. and larger) from the stump to a point in the central stem at which utilization for sawn products is limited by large branches, forks, or other defects, or by a diameter outside bark 7.0 inches for softwoods and 9.0 inches for hardwoods.*

Average sawtimber volume per acre increased from 965 to 1,797 board feet between surveys. Sawtimber trends are shown in the following tabulation:

Sawtimber	[4]1962	1977
	(Million board feet)[5]	
Softwoods	6,133	8,531
Hardwoods	8,742	16,077
Total	14,875	24,608

As in growing stock, aspen is by far the leading sawtimber species in Minnesota, comprising 25 percent of the volume. Aspen also showed the most rapid growth, increasing by 170 percent in the 15 years between surveys. Red pine is the second-ranked sawtimber species, accounting for 8 percent of the total volume. Red oak, elm, and jack pine, in that order, are the other most abundant sawtimber species in Minnesota. Volumes of all these species have increased since 1962. These five species account for over one-half of the State's sawtimber volume. Shown below are the sawtimber volumes of these species:

Species	Sawtimber
	(Million board feet)[5]
Aspen	5,975
Red pine	1,953
Red oak	1,820
Elm	1,607
Jack pine	1,566

The major concentrations of timber are found in a 17-county area in northern Minnesota encompassing the Aspen-Birch and Northern Pine Survey Units (fig. 1). This area contains more than 80 percent of the State's growing stock volume and 77 percent of the State's sawtimber volume. Ninety-seven percent of the State's pine growing-stock volume and 99 percent of its spruce volume is found here. The distribution of growing-stock volumes by survey unit is shown below:

Survey Unit	Growing-stock volume	
	Softwoods	Hardwoods
	(Percent)	
Aspen-Birch	54.3	33.0
Northern Pine	43.4	44.0
Central Hardwood	2.2	18.5
Prairie	0.1	4.5
Total	100.0	100.0

These statistics are based on results from the cooperative Forest Inventory conducted from July 1974 to July 1978 by the North Central Forest Experiment Station and the Minnesota Department of Natural Resources. This is one of a number of reports that will be prepared to make these resource statistics available.

Sampling error (at one standard deviation) is estimated to be ±1.04 percent for the total growing stock volume in the State of 11.4 billion cubic feet. Sawtimber sampling error is estimated to be ±1.85 percent for the State total of 24.6 billion board feet.

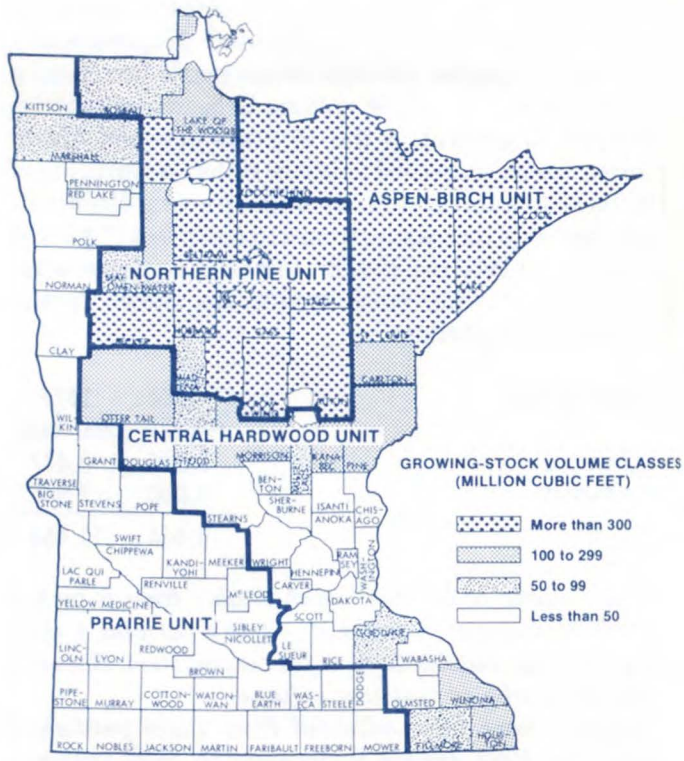

Figure 1.—*Growing stock volume in Minnesota counties, 1977.*

[4]*Figures have been adjusted from those published after the 1962 survey to conform to 1977 volumes because of changes in survey procedures and definitions.*

[5]*International ¼-inch rule.*

Table 1.--Net volume of growing stock[1/] on commercial forest land by species[2/] and county, Minnesota 1977

(In thousand cubic feet)

County	All species	Softwoods: White and red pine	Softwoods: Jack pine	Softwoods: Spruce	Softwoods: Balsam fir	Softwoods: Tamarack and cedar	Softwoods: Other soft-woods	Hardwoods: Elm-ash basswood	Hardwoods: Oaks	Hardwoods: Aspen	Hardwoods: Paper birch	Hardwoods: Other hard-woods
ASPEN-BIRCH												
Carlton	210,376	17,082	1,767	8,700	17,047	8,117	--	35,370	8,810	57,322	33,721	22,440
Cook	534,017	11,613	21,913	82,685	97,165	31,744	--	7,091	--	171,395	96,544	13,867
Koochiching	928,923	22,753	20,709	170,474	100,736	135,430	--	81,790	1,673	262,888	47,414	85,056
Lake	694,029	33,460	26,106	79,868	85,162	54,112	--	26,747	325	158,441	172,099	57,709
St. Louis	2,154,730	153,850	142,077	214,729	259,277	92,221	138	126,339	3,816	736,692	270,997	154,594
Total	4,522,075	238,758	212,572	556,456	559,387	321,624	138	277,337	14,624	1,386,738	620,775	333,666
NORTHERN PINE												
Aitkin	487,614	6,128	2,244	13,430	22,870	33,898	184	121,016	38,165	123,423	54,527	71,729
Becker	305,068	11,130	22,148	5,213	9,606	7,191	--	46,437	41,542	107,449	38,416	15,936
Beltrami	683,735	54,307	50,695	26,326	40,957	71,526	--	81,272	16,135	213,220	60,633	68,664
Cass	854,270	115,379	70,765	13,579	50,581	34,875	89	72,866	70,614	274,528	114,616	36,378
Clearwater	266,797	15,612	6,016	5,127	10,647	11,151	--	41,026	18,721	100,995	28,339	29,163
Crow Wing	327,167	17,713	40,629	1,223	4,680	5,501	--	24,342	72,741	109,000	40,456	10,882
Hubbard	344,524	23,132	66,626	5,981	7,290	5,252	--	12,193	29,079	147,637	34,933	12,401
Itasca	1,297,155	112,208	45,407	59,340	166,592	77,511	121	137,473	24,626	426,676	141,622	105,579
Lake of the Woods	192,801	2,920	24,196	18,428	11,176	28,461	--	9,217	965	58,679	12,735	26,024
Mahnomen	91,371	120	1,375	318	271	1,067	--	26,815	16,745	29,118	6,114	9,428
Roseau	99,416	--	16,466	6,007	3,362	13,351	--	9,020	1,178	29,068	4,693	16,271
Wadena	72,976	4,870	24,122	779	102	1,183	--	5,144	8,014	22,466	1,680	4,616
Total	5,022,894	363,519	370,689	155,751	328,134	290,967	394	586,821	338,525	1,642,259	538,764	407,071
CENTRAL HARDWOOD												
Anoka	28,414	580	241	27	25	693	54	9,393	9,703	2,202	1,092	4,404
Benton	22,075	846	425	25	36	127	18	5,750	8,219	2,758	1,345	2,526
Carver	9,221	97	14	4	5	143	11	3,346	2,838	487	269	2,007
Chisago	39,317	1,032	479	137	101	1,286	78	13,003	11,236	3,960	1,733	6,272
Dakota	13,381	222	63	31	34	570	36	5,006	3,582	1,367	548	1,922
Douglas	12,281	151	84	27	38	284	37	3,776	3,588	2,208	800	1,288
Fillmore	54,832	747	472	1	18	162	192	12,345	26,634	5,949	3,055	5,257
Goodhue	52,365	558	247	11	29	258	139	12,783	24,755	4,440	2,724	6,421
Hennepin	6,455	64	12	6	6	160	8	2,595	1,547	394	170	1,493
Houston	106,619	574	227	11	21	114	159	25,170	55,301	6,244	5,241	13,557
Isanti	32,797	1,454	797	183	100	1,620	93	9,499	9,734	3,942	1,657	3,718
Kanabec	101,060	1,555	302	297	381	2,038	166	24,854	26,728	26,220	8,880	9,639
Le Sueur	9,030	71	18	10	10	259	11	3,628	1,955	520	237	2,311
Mille Lacs	95,532	1,323	219	285	389	1,985	194	26,964	23,362	22,976	8,239	9,596
Morrison	115,167	1,932	1,095	130	141	2,025	347	29,550	46,689	14,803	6,609	11,846
Olmsted	26,266	405	191	1	7	140	81	6,359	12,635	2,572	1,370	2,505
Otter Tail	140,234	2,524	667	487	730	2,601	373	38,361	32,445	35,703	13,047	13,296
Pine	299,170	8,336	2,699	3,209	3,225	7,399	175	60,644	48,972	107,800	33,398	23,313
Ramsey	--	--	--	--	--	--	--	--	--	--	--	--
Rice	10,778	73	10	19	14	136	12	4,387	2,153	820	321	2,833
Scott	12,340	103	20	9	7	222	12	4,666	3,382	589	328	3,002
Sherburne	48,087	985	601	94	174	151	392	11,124	23,494	3,543	2,367	5,162
Stearns	49,181	574	149	30	47	283	66	13,060	22,172	4,286	2,661	5,853
Todd	77,260	846	308	162	259	1,262	154	24,637	21,722	14,058	5,306	8,546
Wabasha	48,661	564	336	8	23	342	164	11,232	23,294	5,049	2,733	4,916
Washington	8,726	81	15	21	19	328	8	3,510	1,553	779	281	2,131
Winona	100,794	597	311	2	22	32	199	22,691	52,859	6,915	5,270	11,896
Wright	26,773	290	149	33	52	280	82	7,353	10,011	3,913	1,714	2,896
Total	1,546,816	26,584	10,151	5,260	5,913	24,900	3,261	395,686	510,563	284,497	111,395	168,606

(Table 1 continued on next page)

(Table 1 continued)

PRAIRIE

County	All species	Softwoods: White and red pine	Jack pine	Spruce	Balsam fir	Tamarack and cedar	Other softwoods	Hardwoods: Elm-ash basswood	Oaks	Aspen	Paper birch	Other hardwoods
Big Stone	1,574	--	--	--	--	--	2	566	282	282	22	420
Blue Earth	19,767	--	--	2	--	--	93	9,337	5,596	983	118	3,638
Brown	8,526	--	--	--	--	--	66	3,837	2,498	469	53	1,603
Chippewa	2,438	--	--	--	--	--	5	859	381	487	40	666
Clay	7,296	--	--	12	--	--	8	2,278	1,881	1,435	149	1,533
Cottonwood	2,153	--	--	--	--	--	--	972	292	382	18	489
Dodge	6,136	--	--	--	--	--	69	2,633	2,231	162	36	1,005
Fairbault	5,608	--	--	--	--	--	6	2,889	1,091	446	35	1,141
Freeborn	4,339	--	--	2	--	--	43	1,759	1,543	221	32	739
Grant	2,715	--	--	--	--	--	1	1,019	806	461	57	371
Jackson	1,958	--	--	--	--	--	3	829	524	207	12	383
Kandiyohi	7,947	--	--	3	--	--	57	2,726	2,964	709	72	1,416
Kittson	32,021	186	110	46	68	93	13	3,587	4,452	16,958	185	6,323
Lac qui Parle	3,580	--	--	1	--	--	2	1,727	476	480	32	862
Lincoln	1,867	--	--	--	--	--	9	751	529	230	15	333
Lyon	3,485	--	--	--	--	--	10	1,615	697	359	26	778
McLeod	5,839	--	--	--	--	--	1	2,993	1,539	310	40	956
Marshall	63,118	233	138	201	82	166	41	9,233	9,543	29,098	550	13,833
Martin	3,085	--	--	--	--	--	1	1,318	568	521	28	649
Meeker	9,998	--	--	--	--	--	31	4,752	3,201	208	40	1,766
Mower	4,959	--	--	--	--	--	46	2,159	1,686	204	30	834
Murray	790	--	--	--	--	--	--	359	186	72	5	168
Nicollet	11,490	--	--	1	--	--	20	5,561	3,073	601	49	2,185
Nobles	523	--	--	--	--	--	--	177	86	135	8	117
Norman	15,448	7	4	17	2	4	7	4,318	2,343	5,353	167	3,226
Pennington	20,227	23	14	33	8	12	8	4,457	3,049	8,665	140	3,818
Pipestone	382	--	--	--	--	--	3	141	92	69	4	73
Polk	48,740	24	14	91	8	16	53	15,102	9,275	14,344	550	9,263
Pope	4,762	1	1	10	--	9	22	1,384	1,084	1,120	54	1,077
Red Lake	17,932	18	11	23	6	9	25	3,574	2,897	8,048	94	3,227
Redwood	4,783	--	--	3	--	--	31	1,802	1,230	668	50	999
Renville	6,586	--	--	6	--	4	33	2,929	1,670	584	47	1,313
Rock	319	--	--	--	--	--	1	125	48	49	5	91
Sibley	10,382	--	--	--	--	--	51	4,914	3,029	562	73	1,753
Steele	4,560	--	--	2	--	--	24	2,004	1,438	283	34	775
Stevens	741	--	--	--	--	--	--	270	158	184	17	112
Swift	3,494	--	--	--	--	--	7	1,420	626	639	46	756
Traverse	509	--	--	--	--	--	2	151	80	107	11	158
Waseca	4,007	--	--	--	--	--	10	1,910	1,158	166	23	740
Watonwan	897	--	--	--	--	--	--	557	81	19	--	240
Wilkin	225	--	--	--	--	--	1	49	41	65	7	62
Yellow Medicine	7,006	--	--	--	--	--	20	3,060	1,699	881	74	1,272
Total	362,212	492	292	453	174	313	825	112,103	76,123	97,226	3,048	71,163
All Units	11,453,997	629,353	593,704	717,920	893,608	637,804	4,618	1,371,947	939,835	3,410,720	1,273,982	980,506

1/ Net volume of all live merchantable trees 5 inches d.b.h. and larger from the stump to a variable 4-inch top diameter outside bark of the central stem. Does not include limbs or cull tree volume.

2/ Species groups: Other softwoods-eastern redcedar. Other hardwoods - hickories, yellow birch, maples, butternut, black walnut, black cherry, boxelder, river birch, hackberry, cottonwood, black willow and balsam poplar.

Table 2.--Net volume of sawtimber[1/] on commercial forest land by species[2/] and county, Minnesota 1977

(In thousand board feet)[3/]

County	All species	Softwoods: White and red pine	Softwoods: Jack pine	Softwoods: Other soft-woods	Hardwoods: Sugar maple and yellow birch	Hardwoods: Basswood	Hardwoods: Ash and elm	Hardwoods: Red oaks	Hardwoods: White oaks	Hardwoods: Aspen and paper birch	Hardwoods: Other Hard-woods
ASPEN-BIRCH											
Carlton	347,958	85,358	6,638	47,633	7,810	11,280	41,259	15,905	4,419	99,160	28,496
Cook	1,083,698	67,244	69,301	429,911	10,501	--	2,385	--	--	486,135	18,221
Koochiching	1,594,444	106,516	38,513	638,758	3,472	15,248	187,599	--	6,333	452,552	145,453
Lake	1,466,852	167,801	86,183	446,024	51,736	8,824	48,538	1,211	--	584,256	72,279
St. Louis	3,831,644	685,486	388,952	876,910	10,481	29,178	209,577	6,169	3,022	1,373,384	248,485
Total	8,324,596	1,112,405	589,587	2,439,236	84,000	64,530	489,358	23,285	13,774	2,995,487	512,934
NORTHERN PINE											
Aitkin	1,039,872	33,952	4,144	123,950	106,188	93,966	168,790	69,744	25,811	321,415	91,912
Becker	620,361	53,149	55,290	50,634	10,714	46,920	67,327	62,776	48,217	207,410	17,924
Beltrami	1,407,730	254,212	148,006	200,846	17,270	55,007	129,970	6,823	19,484	470,334	105,778
Cass	2,027,912	603,785	178,454	213,524	11,467	57,584	96,066	92,021	45,659	669,047	60,305
Clearwater	521,323	82,592	15,719	56,306	10,733	25,648	67,338	32,191	16,444	171,997	42,355
Crow Wing	592,708	79,955	83,806	18,410	6,495	14,202	24,463	110,207	31,990	214,471	8,709
Hubbard	608,538	103,214	167,348	44,747	1,624	3,473	7,673	23,659	19,247	219,748	17,805
Itasca	2,987,983	564,648	139,345	597,974	49,080	91,870	190,418	22,196	17,575	1,099,390	215,487
Lake of the Woods	334,578	5,780	60,432	76,265	--	3,847	17,049	--	3,731	120,867	46,607
Mahnomen	168,247	568	2,196	5,559	2,688	17,612	28,115	9,407	25,666	58,145	18,291
Roseau	183,368	--	53,389	38,440	--	819	13,003	--	3,313	52,134	22,270
Wadena	128,130	18,244	44,484	2,838	--	2,912	11,266	11,699	7,361	22,387	6,939
Total	10,620,750	1,800,099	952,613	1,429,492	216,259	413,860	821,478	440,723	264,499	3,627,345	654,382
CENTRAL HARDWOOD											
Anoka	105,665	1,949	532	1,662	4,268	12,315	26,032	24,602	14,174	4,322	15,809
Benton	73,720	1,553	803	522	3,508	8,679	13,751	22,436	10,835	5,852	5,781
Carver	38,303	515	33	345	2,361	4,614	9,880	7,626	4,286	1,045	7,598
Chisago	136,656	2,195	939	3,211	7,284	16,132	34,802	27,172	15,986	8,141	20,794
Dakota	45,496	997	128	1,179	1,731	3,585	14,594	8,864	4,629	2,682	7,107
Douglas	35,423	750	240	930	1,554	4,491	8,760	7,944	4,798	3,828	2,128
Fillmore	183,563	3,823	1,390	769	5,092	17,826	30,721	68,538	32,281	11,222	11,901
Goodhue	182,049	2,302	600	817	7,418	16,171	32,529	70,644	25,617	9,360	16,591
Hennepin	26,870	321	25	357	1,573	3,484	7,736	3,722	2,629	866	6,157
Houston	392,741	2,951	609	604	15,603	35,314	63,564	171,596	55,055	14,157	33,288
Isanti	97,605	1,979	1,616	4,113	3,833	9,793	23,916	22,659	12,542	7,179	9,975
Kanabec	255,196	7,480	575	5,972	11,596	26,315	54,229	58,390	27,571	45,021	18,047
Le Sueur	36,716	329	36	573	2,795	3,707	11,166	4,987	2,923	1,077	9,123
Mille Lacs	247,242	6,224	299	5,744	13,382	32,758	56,442	49,119	25,140	43,057	15,077
Morrison	366,219	7,673	2,810	5,661	11,756	36,663	72,568	116,113	57,408	27,419	28,148
Olmsted	91,348	2,121	564	492	2,302	9,983	15,888	32,737	16,447	4,925	5,889
Otter Tail	345,069	11,514	1,188	8,076	19,743	48,837	75,680	66,316	32,725	66,325	14,665
Pine	588,231	32,830	5,771	19,555	28,465	60,411	113,321	81,813	44,873	175,996	25,196
Ramsey	--	--	--	--	--	--	--	--	--	--	--
Rice	44,855	371	20	432	3,746	5,825	13,111	5,053	3,811	1,736	10,750
Scott	51,873	531	50	530	3,690	5,885	14,137	9,092	5,157	1,276	11,525
Sherburne	167,266	2,337	1,574	719	5,723	16,215	27,095	68,574	25,738	7,354	11,937
Stearns	178,922	2,987	426	883	6,842	19,442	32,635	63,431	28,054	9,939	14,283
Todd	222,937	4,162	678	4,266	1,701	31,242	54,487	49,230	25,317	27,909	23,945
Wabasha	162,174	2,847	960	1,099	4,630	15,059	27,907	61,474	26,511	9,822	11,865
Washington	34,426	369	25	600	2,284	4,032	10,658	3,461	2,646	1,442	8,909
Winona	360,560	3,030	855	479	13,333	31,594	56,125	160,384	52,114	15,146	27,500
Wright	82,629	1,457	398	1,058	3,701	9,599	17,061	24,540	11,625	7,776	5,414
Total	4,553,754	105,597	23,144	70,648	189,914	489,971	918,795	1,290,517	570,892	514,874	379,402

(Table 2 continued on next page)

(Table 2 continued)

PRAIRIE

County	All species	Softwoods: White and red pine	Softwoods: Jack pine	Softwoods: Other Softwoods	Hardwoods: Sugar maple and yellow birch	Hardwoods: Basswood	Hardwoods: Ash and elm	Hardwoods: Red oaks	Hardwoods: White oaks	Hardwoods: Aspen and paper birch	Hardwoods: Other Hardwoods
Big Stone	5,317	--	--	5	--	585	2,042	48	1,041	259	1,337
Blue Earth	88,482	--	--	143	4,462	17,264	30,215	7,753	16,833	889	10,923
Brown	37,925	--	--	96	1,392	6,895	12,240	4,026	6,870	474	5,932
Chippewa	7,575	--	--	10	--	791	3,087	87	1,221	458	1,921
Clay	23,101	--	--	84	558	1,077	9,012	802	6,452	1,026	4,090
Cottonwood	7,863	--	--	--	--	925	3,699	62	1,043	363	1,771
Dodge	28,198	--	--	100	1,137	5,668	7,622	3,777	6,046	136	3,712
Fairbault	24,300	--	--	9	654	4,015	10,739	701	3,998	436	3,748
Freeborn	19,191	--	--	72	815	3,787	5,000	2,515	4,249	165	2,588
Grant	9,536	--	--	2	239	455	4,371	343	2,940	286	900
Jackson	7,902	--	--	4	404	1,328	2,670	554	1,696	183	1,063
Kandiyohi	33,130	--	--	102	114	4,626	8,936	1,784	11,727	649	5,192
Kittson	44,047	1,198	416	331	--	2,203	8,843	1,380	9,620	10,361	9,695
Lac qui Parle	14,047	--	--	12	--	1,720	6,772	110	1,822	483	3,128
Lincoln	7,511	--	--	13	171	1,150	2,498	539	1,759	203	1,178
Lyon	14,137	--	--	15	247	2,364	5,582	743	2,243	350	2,593
McLeod	26,304	--	--	1	1,471	4,930	10,802	921	5,794	216	2,169
Marshall	111,282	1,500	521	980	285	5,973	27,094	2,522	24,699	19,448	28,260
Martin	11,394	--	--	1	330	1,564	4,730	342	1,891	474	2,062
Meeker	47,438	--	--	44	3,778	10,411	13,788	5,672	9,258	196	4,291
Mower	22,417	--	--	66	1,085	4,524	6,288	2,975	4,460	175	2,844
Murray	3,197	--	--	1	75	651	1,140	159	722	64	385
Nicollet	52,093	--	--	36	3,528	10,426	17,486	4,997	9,010	592	6,018
Nobles	1,553	--	--	1	--	115	660	10	279	118	370
Norman	39,652	45	16	105	--	2,960	15,318	532	7,033	4,386	9,257
Pennington	43,803	148	51	200	185	3,567	14,463	1,225	8,371	6,732	8,861
Pipestone	1,338	--	--	4	6	175	478	95	253	59	268
Polk	144,142	154	54	559	1,532	13,240	56,532	3,931	31,043	11,202	25,895
Pope	14,027	6	2	42	141	1,414	4,474	797	2,990	962	3,199
Red Lake	36,804	116	40	165	185	3,493	10,269	1,904	7,237	6,334	7,061
Redwood	17,862	--	--	62	139	2,637	5,966	1,187	3,849	581	3,441
Renville	27,371	--	--	56	729	4,201	10,107	2,024	4,955	552	4,747
Rock	1,054	--	--	1	--	155	429	19	157	48	245
Sibley	46,617	--	--	73	2,268	8,883	16,268	4,068	9,289	458	5,310
Steele	20,074	--	--	43	1,239	3,962	5,996	2,512	3,936	216	2,170
Stevens	2,389	--	--	1	--	124	1,166	7	600	139	352
Swift	12,142	--	--	10	12	1,542	5,213	303	2,085	542	2,435
Traverse	1,477	--	--	3	--	76	569	5	243	106	475
Waseca	18,469	--	--	15	1,566	4,055	5,519	2,469	2,954	165	1,726
Watonwan	4,240	--	--	--	--	724	2,125	50	354	52	935
Wilkin	537	--	--	1	--	18	160	--	117	52	189
Yellow Medicine	28,157	--	--	30	625	3,801	11,260	1,560	5,741	763	4,377
Total	1,108,095	3,167	1,100	3,498	29,372	148,474	371,628	65,510	226,880	71,353	187,113
State Total	24,607,195	3,021,268	1,566,444	3,942,874	519,545	1,116,835	2,601,259	1,820,035	1,076,045	7,209,059	1,733,831

1/ Net volume of live merchantable sawtimber trees (softwoods 9.0 inches d.b.h. or larger and hardwoods 11.0 inches d.b.h. and larger) from the stump to a point in the central stem at which utilization for sawn produjcts is limited by large branches, forks, or other defects, or by a diameter outside bark 7.0 inches for softwoods and 9.0 inches for hardwoods.

2/ Species groups: Other softwoods - eastern redcedar. Other hardwoods--hickories, black, red, and silver maple, balsam poplar, butternut, black walnut, black cherry, boxelder, river birch, hackberry, cottonwood and black willow.

3/ International 1/4-inch rule.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1981—766-850